

Letter n°56

The objectives and 14 challenges of the energy transition.

"The prophecy of doom is made to avert its coming." Hans Jonas.

This Letter, an antithesis to the approach of the "collapsologists" who predict the greatest catastrophes and are supporters of a halt to growth, affirms the need for continued growth.

One can harbor intolerable remorse for the negligence of the policies carried out in the world in recent decades but inevitably, by 2050, the world's population will increase by a third, or 2.5 billion. Undoubtedly, energy consumption in emerging countries of Africa and Asia will continue to grow. So, whatever happens, energy consumption will increase and, if nothing is done, greenhouse gas emissions will worsen.

The challenge is therefore to produce more energy without increasing emissions.

The ecological transition has a high cost, the equivalent of a few points of GDP each year and everyone, households, companies and governments will have to do their part.

Nothing is set in stone yet because this financing comes up against 3 constraints: government debt, household purchasing power, and the slowdown in productivity gains of companies.

In this Letter 56, we will compare the stated objectives, ambitious in words but modest in initial actions, with the 14 challenges identified.

Stated objectives:

Reducing emissions is a shared goal but measurement is difficult and many companies underestimate their pollution.

- *The 2015 Paris Agreement:*

Each country sets its own objectives and roadmap. The most ambitious nations have been Canada, South Africa, Argentina, while the least ambitious have unfortunately been large countries, India, Brazil, China, Russia, Mexico.

The Paris Agreement called for emissions to be cut by 8% each year. The result has not been achieved and the poorest countries can blame the rich countries for not keeping their commitments.

- *Glasgow in 2021,*

8 disappointments:

- *Global supervision of emissions calculations:* this would be essential because some countries underestimate their pollution, but it does not exist.
- *A global market for carbon emissions:* this would be needed to replace the current practice of buying rights to pollute that are confined to geographical areas, notably Europe. But the carbon rights trading system has not been fixed.

- *A binding target* of a 45% reduction in greenhouse gases by 2030 compared to 2010 emissions and the elimination of old coal-fired power plants should be imposed, but nothing is binding at present.
- *The guarantee of a payment of \$100 billion/year to emerging countries* to help them in the energy transition. The developed countries have mentioned it but have not guaranteed anything.
- *The fight against deforestation*: this is a serious matter because, in 60 years, half of the tropical forests have disappeared. A hundred countries have signed a commitment to end deforestation by 2030. But governments can remove a forest if they replant trees.
- *The exit from coal*: there is no agreement but just the idea of a gradual reduction. 45 countries have committed to ending coal but not the major producers.
- *The reduction of fossil fuels*, there is no general commitment even though fossil fuels account for 75% of greenhouse gas emissions.

4 relative successes:

- *Methane*: a promise was signed by nearly 100 of the 200 countries present to reduce methane emissions by 30% by 2030. This is important because methane, emitted mainly by agriculture but also by landfill waste, is the second most harmful greenhouse gas after CO₂. Methane contributes more to global warming than carbon dioxide.

Nevertheless, China, India and Russia, which account for more than 30% of methane emissions, have not signed. Neither has Australia, as it is one of the leading exporters of meat and a major producer of coal. Coal, like gas, emits a lot of methane.

- *Financial aid to South Africa*: some developed countries, including France and Germany, have decided to provide financing to South Africa (4% of the African population but 40% of African emissions) because, despite a dependence on coal for 80% of its electricity production, the country aims for carbon neutrality by 2050 and wants to restrict emissions by 15 to 30% by 2030.
- *Greater German voluntarism*: according to the German coalition agreement, 80% of electricity will come from renewable sources by 2030.
- *A Sino-American agreement*, between the two biggest polluters, to work together on climate.

In other words, there has not been a decision to reduce global greenhouse gas emissions by 45% by 2030, nor a decision to limit global warming to 1.5 degrees by 2100, and no sanctions. The situation will therefore deteriorate and the prospect seems to be 2 degrees of warming.

The 14 challenges:

- *From an economic point of view*, fossil fuels still account for 83% of primary energy (31% oil, 27% coal, 25% gas), we should go to 0! Of the \$14 trillion spent by G20 countries to boost their economies after the Covid crisis, only 6%, according to the journal *Nature*, was aimed at reducing greenhouse gas emissions and, since the beginning of the year, there has been a resurgence in emissions.

If alternative energies were to develop more rapidly, investments in energy should increase from 2% of GDP in the world to 5% and, in this sense, *the IEA* recommends increasing investments in energy from \$2 trillion/year today to \$5 trillion in 2030.

The energy transition will force companies and households to give up existing facilities, to divest themselves of buildings that are too expensive to renovate, to abandon obsolete boilers, etc., and it will be necessary to acquire more expensive equipment.

The loss of purchasing power cannot be tackled through tax cuts because it would contradict the objective of reducing the consumption of fossil fuels.

In order to reach the G20's target of limiting global warming to 1.5 degrees, 3,000 coal-fired power plants would have to be shut down by 2030, one every day. We are a long way off and CO2 emissions will set a record in 2023.

Governments can continue to build coal-fired power plants. The only change is that they are not allowed to build plants abroad. China's largest banks have refused to commit to stop financing coal.

- ***From a budgetary point of view***, the states, already faced with high public debt and the rise in interest rates caused by inflation, will have to support the financial effort of households and companies in the energy transition.
- ***From the point of view of competitiveness***: following the rise in hydrocarbon prices, we could have expected renewable energies to be more competitive but this was to ignore the rise in the price of metals and so the cost of wind turbines has increased by some 20% in the last two years. Same trend for solar panels.

In addition, costly investments in storage capacity are required to compensate for the intermittent supply generated by solar and wind power.

- ***From a geopolitical perspective***: global warming poses a threat to global security.

A 2013 IPCC study published in the journal *Science* analyzes 10,000 years of history and points out that rising average temperatures and changing rainfall pattern have led to 45 conflicts and violence.

In Al Gore's film, the 2003 Darfur conflict appears to be the first climate war. If the nomads of the North attacked sedentary tribes of the South, it was because of the desertification of the North in order to seize the still fertile lands of the South.

Other wars could eventually arise over the waters of the Nile or between Syria and Turkey over the Tigris and Euphrates rivers, or between India and China over the Brahmaputra, or between India and Pakistan over the Indus.

- ***From an industrial point of view***, subsidies for renewable energies should not benefit Chinese companies but go hand in hand with the ambition of relocation. Care must be taken to relocate the production of the equipment necessary for the energy transition to create added value.
- ***From a trade point of view***, globalization is not a primary cause of global warming because maritime transport accounts for 3% of global emissions, a percentage much lower than emissions from production equipment.
- ***From a demographic point of view***: there are two aspects.
On the one hand, although there is no strong relationship between population and the environment, since 300 million Americans pollute more than a billion Africans, the increase in the world population from 7.7 billion today to 10 billion in 2050 will result in an increase in energy consumption.

Nevertheless, pollution is a health scourge and according to the WHO, air pollution is already the leading cause of death in the world.

- ***From the point of view of energy consumption***, by 2050, global energy demand will grow by 50% and if nothing changes, carbon emissions will increase identically.

In addition to the effect of the increase in international population, energy consumption will be driven by economic expansion and rising living standards in emerging countries. Let's not forget that although they represent 85% of the world's population, emerging countries still consume only 60% of the world's energy. Finally, let us not forget to point out the development of digital technology, which is voracious in terms of energy.

- ***From an individual or regional perspective***, it is difficult to impose additional costs on individuals or on a single country when many countries continue to emit greenhouse gases without limit.
- ***From an urban perspective***, cities are home to more than half of the world's population and account for 3/4 of the world's GDP. With rising sea levels, several hundred million people will have to move.
- ***From a political point of view***, our society is governed by the dictatorship of the short term, both in the stock market and in our democratic practices. Decisions are made on the basis of immediate interest and this is difficult to combine with the transition because the return on investment is long.
- ***From a financial point of view***, the increase in the cost of energy will result, on the one hand, from the reduction of investments in fossil fuels, therefore from supply pressures and price increases, on the other hand, from the implementation of the carbon tax and the higher production costs of renewable energies.
- ***From a social point of view***, higher energy prices will penalise low-income households more as the share of income allocated to the energy bill is significantly higher than for high-income households.
- ***From a professional point of view***, the energy transition will certainly create jobs but it will also eliminate jobs in the condemned sectors. There will therefore be a cost of retraining and transitional unemployment. In the automotive industry, for example, the labor required to assemble an electric vehicle is less than that required to manufacture a combustion engine.

Conclusion: Economic growth is essential for the transition:

"If you don't take change by the hand, it will take you by the throat," wrote Churchill.

Over the last 80 years, ***Martin Heidegger, Jacques Ellul and Hans Jonas*** have constantly denounced the perverse effects of a productivist modernity. In 1972, the ***Club of Rome*** asserted that "there can be no infinite growth in a finite world" but this was a caricatured perception of the economy, because when a resource runs out, innovation is stimulated and substitutes are found.

With the optimists, let us argue that only the progress of science will make it possible to overcome the difficulties and ensure the energy transition.

As opposed to the philosopher ***Günther Anders*** who criticized the inhuman nature of progress in 1980, and to the philosopher ***Horkheimer*** who wrote ***"Progress always pays for the most appalling things"***, we prefer ***Condorcet's*** confidence in progress, while being aware, like ***Paul Valéry***, of the mortal nature of our civilizations.

Today, if we listen to declinologists, listen to Greta Thunberg, the world will face great catastrophes that no technology can avoid. According to ***Jancovici***, there are too many of us on earth and therefore we should not treat the old and not perform transplants after 65 years!

How can we follow ***Pablo Servigne*** who wrote in "Another end of the world is possible", ***"We must accept the collapse. It would wash the world of its impurities, of its capitalists and then there will be a more equitable society."***

The truth lies somewhere in between, between climate skeptics and collapsologists. The agricultural revolution has lifted hundreds of millions of people out of poverty, but food insecurity persists and is even worsening recently. Greenhouse gas emissions have never been higher, but only innovation can lower the costs of the energy transition.

Changes in modes of production, transport, housing and individual behaviour are needed and governments play a key role in encouraging, guiding, accompanying and subsidizing the transition.

In the meantime, we must be prepared for the shock of global warming in the most vulnerable areas.

Geneva, 20th May 2022

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